

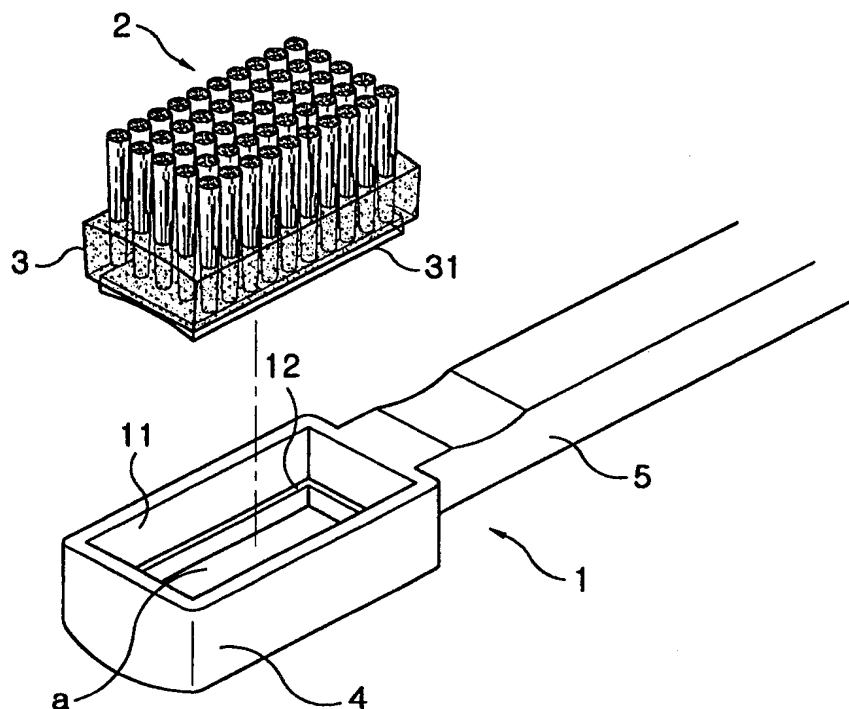


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(54) Title: TOOTH BRUSH**(57) Abstract**

Disclosed is a tooth brush in which a base plate (3) is buffered when bristles contact the faces of teeth. The tooth brush comprises a base plate (3), having a lot of bristles and high elasticity, which is composed of a soft material having good restoring force, and a base plate case (4) including a recess (11), in which a predetermined space (2) is formed between the base plate (3) and the bottom thereof. The tooth brush of the present invention buffers the base plate (3) according to upper, lower, left and right brushing directions of the tooth brush, and adaptably and elastically presses bristles against the curved faces of the teeth and gums, thereby solving a defect of the conventional tooth brush.



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TOOTH BRUSH

TECHNICAL FIELD

5 The present invention relates to a tooth brush, and more particularly to a tooth brush which buffers a base plate according to upper, lower, left and right brushing directions of the tooth brush, and adaptably and elastically presses bristles against the inner and outer curved faces of teeth and gums, thereby to allow the teeth to be cleaned out and the gums to be
10 brushed and massaged without damage, and prevents the peripheral of the base plate from being filled with foreign materials.

BACKGROUND ART

15 Generally, a common tooth brush includes a body having bristles and a handle extending from the body. There have been various developments in the tooth brush to prevent the teeth and gums from being damaged.

Conventionally, Korean utility model publication no. 94-5243 discloses a tooth brush for preventing the faces of the teeth from being damaged.

20 This tooth brush comprises an upper plate having a plurality of holes through which bristle members are planted and into the bottom of which the bristle members are exposed, a lower plate which is integrally incorporated as part of a body of the tooth brush, having predetermined recesses to make the upper plate be stably disposed, and an elastic plate
25 which is placed between the upper plate and the lower plate, and with which the lower ends of the bristle members contact elastically.

Accordingly, the bristle members move up and down through the holes of the upper plate and contact raised portions on the elastic plate, to thereby adaptably work on the curved faces of the teeth.

30 However, the bristle members come in and out through the holes when using the tooth brush, and thus foreign materials are introduced from the

external to the internal thereof and decay in case that the tooth brush is used for a long time. Accordingly, the conventional tooth brush causes a problem in insanitary condition.

Also, in case that the bristle members are deformed or the foreign
5 materials are introduced into the holes, there is a drawback that the bristle members have little up-and-down movement

Specially, the conventional tooth brush should be provided with the following requirements.

Frist, the tooth brush should have a structure which allows the lower
10 ends of bristle members to be smoothly moved through holes of the brush member,

second, it is necessary to provide a base plate having the holes so that the bristle members are moved up and down,

third, it is necessary to provide an elastic plate having a plurality of
15 raised portions which correspond to the lower ends of the bristle members,

fourth, recesses which are positioned below the elastic plate and formed on the bottom of the tooth brush body, should exactly fit into the raised portions of the elastic plate, and

fifth, the tooth brush has a structure in which the above respective
20 elements are assembled. Accordingly, the conventional tooth brush is complex in structure rather than function.

DISCLOSURE OF INVENTION

25 To solve the above problems, it is an object of the present invention to provide a tooth brush having a simplified base plate without moving brush members themselves up and down.

It is another object of the present invention to provide a tooth brush which assures brush members to be buffered.

30 It is yet another object of the present invention to provide a buffing tooth brush having a simplified assembly structure constituting bristle

members, a base plate, an elastic plate and a lower plate.

It is still another object of the present invention to provide a hygienic tooth brush which makes a lower portion of a base plate and a body tightly closed with each other, to thereby prevent foreign materials from
5 being left.

To accomplish the above objects of the present invention, there is provided a tooth brush comprising:

a base plate, having a lot of bristles and high elasticity, composed of a soft material having good restoring force; and a base plate case including a
10 recess, in which a predetermined space is formed between the base plate and the bottom thereof.

It is preferable that the recess of the base plate case and the base plate have a dual structure to form the space between the base plate and the base plate case. Also, a lower portion of the base plate is in a
15 central-raised shape to facilitate a contact force with the curved circumferential surfaces of the teeth. It is preferable that the base plate is composed of a silicon material. Furthermore, it is preferable that the space is formed so that the lower portion of the base plate is spaced apart at an interval not being in contact with the bottom of the recess when the base
20 plate is pressed.

BRIEF DESCRIPTION OF DRAWINGS

The preferred embodiment is described with reference to the drawings
25 wherein:

Fig. 1 is a perspective view showing a state that a body and a base plate are combined in a tooth brush according to the present invention;

Fig. 2 is a perspective view showing a state that a body and a base plate are divided from a tooth brush according to the present invention
30 prior to manufacturing the tooth brush;

Fig. 3 is a sectional view taken along a line A-A of Fig. 1 according

to the present invention;

Fig. 4 is a sectional view taken along a line B-B of Fig. 1 according to the present invention;

Fig. 5 is a sectional view taken along a line A-A of Fig. 1 according to the present invention to show a use state of a tooth brush; and

Fig. 6 is a sectional view brush taken along a line B-B of Fig. 1 according to the present invention to show a use state of a tooth brush.

BEST MODE FOR CARRYING OUT THE INVENTION

A preferred embodiment of the present invention will be described in detail with reference to the accompanying drawings.

Fig. 1 is a perspective view showing a state that a body and a base plate are combined in a tooth brush according to the present invention, Fig. 2 is a perspective view showing a state that a body and a base plate are divided from a tooth brush according to the present invention prior to manufacturing the tooth brush, Fig. 3 is a sectional view taken along a line A-A of Fig. 1 according to the present invention, and Fig. 4 is a sectional view taken along a line B-B of Fig. 1 according to the present invention.

As shown in Figs. 1 to 4, the present invention comprises a base plate case 4, having a predetermined space 'a', extending from one end of a longitudinal body 5, and a base plate 3 on which bristles are planted, being combined with the base plate case 4. The base plate case 4 includes a recess 11 into which the base plate 3 is positioned. The recess 11 has a structure of accommodating a part of the base plate 3 so that the space 'a' is formed between the base plate 3 and the bottom of the recess 11 when the base plate 3 is combined thereto.

Such a structure of the base plate 3 can be established by a protrusion 12 which is formed along an inner circumferential surface of the base plate case 4. Preferably, a protrusion 31 corresponding to the protrusion 12 is formed at the lower portion of the base plate 3.

Accordingly, the base plate 3 is inserted into the recess 11 of the base plate case 4, and is stably disposed at the protrusion 12 of the base plate case 4. Between the base plate 3 and the bottom of the base plate case 4, the space 'a' is formed.

5 When the base plate 3 is inserted and combined into the recess 11 of the base plate case 4, a predetermined bonding structure is required.

Fig. 5 is a sectional view taken along a line A-A of Fig. 1 according to the present invention to show a use state of a tooth brush, and Fig. 6 is a sectional view brush taken along a line B-B of Fig. 1 according to the present invention to show a use state of a tooth brush. Examples are described with reference to the drawings.

10 Bristles 2 in the tooth brush according to the present invention elastically and adaptably work on the curved faces of teeth 100 and spaces therebetween and allow the faces of the teeth and spaces to be cleaned out, reducing the contact force with the teeth. The bristles play a role of reducing the contact force against the curved inner and outer faces of the teeth but appropriately increasing the contact force against the interspaces thereof.

That is, the base plate which is composed of a soft material and has good restoring force, forms the space 'a' by which the protrusion 31 is stably disposed at the protrusion 12 formed along the inner circumferential surface of the recess 11 in the base plate case 4. This space 'a' provides an appropriate buffing force required for contacting the teeth interspaces. The tooth brush of such a structure is fully reinforced with the buffing force of the base plate by a property of the soft material, irrespective of bristles being composed of a soft material or hard material. In order to appropriately support an up-and-down movement of the base plate, a predetermined soft material is employed for use in the base plate, and preferably a silicon material is used.

30 The tooth brush according to the present invention elastically and adaptably works on the curved faces and interspaces of the teeth and

allows the faces and interspaces thereof to be cleaned out, by the base plate being moved up and down in the space 'a'. Differently from the conventional tooth brush that the bristle members maintain a constant contact state when working on the faces of the teeth, the present invention

5 provides effects that prevent the faces of the teeth from being unnecessarily scrubbed for further insertion therein when cleaning the interspaces of the teeth, and protect the gums not to be unnecessarily brushed when cleaning the faces of the teeth.

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CLAIMS

1. A tooth brush comprising:

a base plate, having a lot of bristles and high elasticity, composed of a
5 soft material having good restoring force; and

a base plate case including a recess, in which a predetermined space is
formed between the base plate and the bottom thereof.

2. The tooth brush according to claim 1, wherein said base plate case
10 and said base plate are combined by protrusions corresponding to each other.

3. The tooth brush according to claim 1, wherein a lower portion of
said base plate is in a central-raised shape.

15 4. The tooth brush according to claim 1, wherein the base plate is
composed of a silicon material.

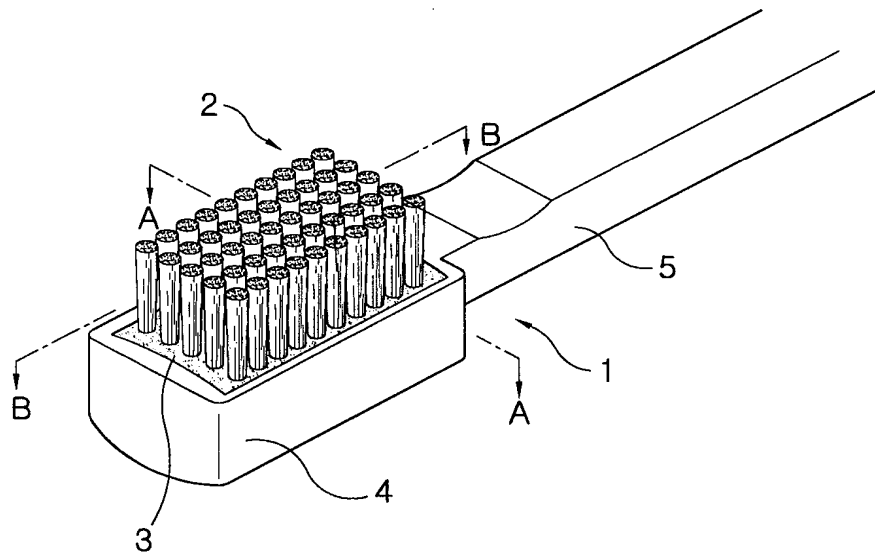
5. The tooth brush according to claim 1, wherein the space is
formed so that the lower portion of the base plate is spaced apart at an
20 interval not being in contact with the bottom of the recess when the base
plate is pressed.

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FIG. 1



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FIG. 2

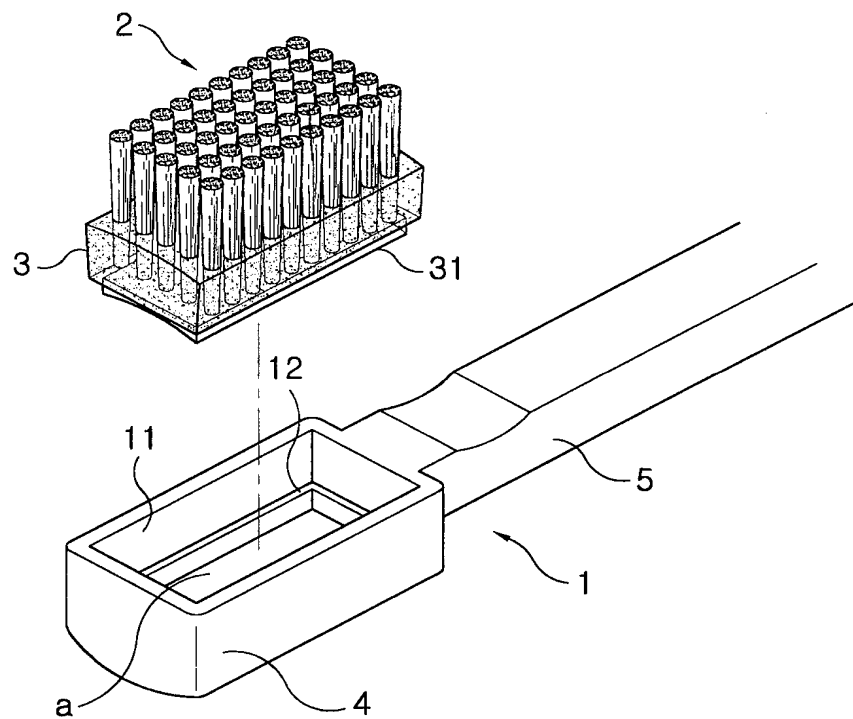
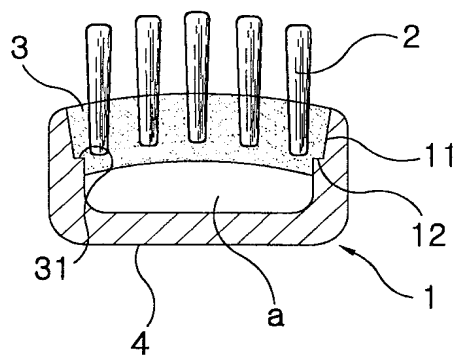


FIG. 3



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FIG. 4

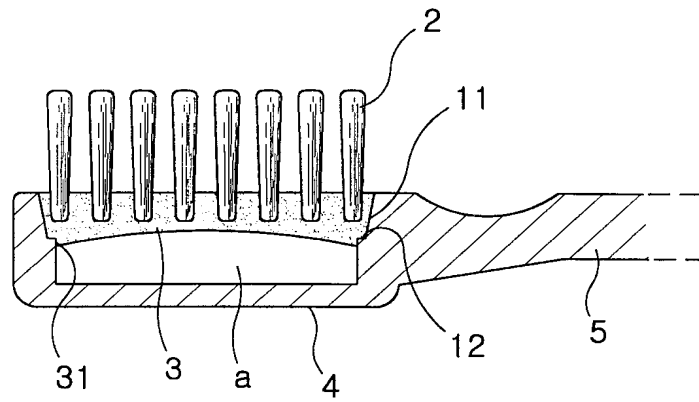
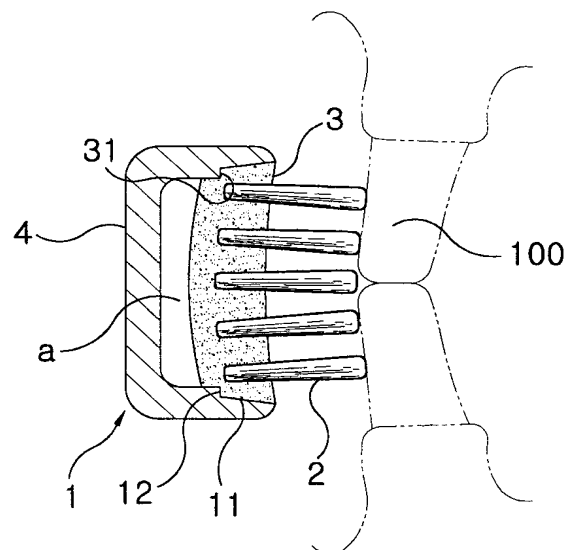


FIG. 5



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR 99/00831

A. CLASSIFICATION OF SUBJECT MATTER

IPC⁷: A 46 B 9/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC⁷: A 46 B, A 61 C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EPODOC, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 19624962 A1 (CORONET-WERKE GMBH) 02 January 1998 (02.01.98), fig.	1-5
A	EP 0870440 A (PONZINI SPA) 14 October 1998 (14.10.98) fig. 1.	1
A	DE 19600767 C1 (RUEB) 05 December 1996 (05.12.96), totality.	1-5

☐ Further documents are listed in the continuation of Box C.

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* Special categories of cited documents:

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Date of the actual completion of the international search

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